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EXAMINER

LI, SHI K

ART UNIT PAPER NUMBER

2633

DATE MAILED: 07/15/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/544,662

Applicant(s)

KAUFFELDT ET AL. (10)

Examiner

Shi K. Li

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2000 and 05 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-20 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 and 16 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that claim 1 fail(s) to correspond in scope with that which applicant(s) regard as the invention can be found in the drawings filed 6 April 2000. In that paper, applicant has indicated in FIG. 1A that the output of multiplexer 82 is coupled to the optical output terminal, and this drawing indicates that the invention is different from what is defined in the claim(s) because claims 1 and 16 recite in lines 30-31 the limitation "a multiplexer having an output coupled to said optical input terminal".

In the following claim rejections, the claims are rejection based on the assumption that the output of the multiplexer is coupled to the optical output terminal.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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4. Claims 1, 3-4, 6, 16 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Ester et al. (PCT Pub. WO 98/47255).

Regarding claims 1 and 19, Ester et al. discloses in FIG. 7 a WDM protection add/drop multiplexer (ADM). The ADM comprises an optical input terminal (labeled WEST WORKING with an arrow pointing to the right), an optical output terminal (labeled EAST WORKING with an arrow pointing to the right), a plurality of protection input terminals (the arrows pointing to the right in the box labeled PROTECTION WEST), a plurality of protection output terminals (arrows pointing to the right in the box labeled PROTECTION EAST), a plurality of add/drop terminals (labeled EAST TRIBUTARY), a demultiplexer (labeled INPUT DEMUX AND FILTER), a plurality of switching units (the diagram only show a switching unit for one channel, however, it is understood that similar arrangement can be applied to other channels) and a multiplexer (labeled OUTPUT MUX). The switching unit can be operated to add the east tributary to the optical output signal.

Regarding claim 3, the switching unit of FIG. 7 includes a third output to WEST TRIBUTARY.

Regarding claim 4, FIG. 7 includes a plurality of drop terminals.

Regarding claim 6, FIG. 7 includes a plurality of add terminals each of which is coupled to a third input of the switching unit.

Regarding claim 16, the structure of each multiplexing unit of the claim is similar to that of claim 1 and has been discussed above. In addition, Ester et al. suggests in FIG. 1 and page 1, lines 6-9 that a plurality of such ADMs can be connected in a ring configuration. That is, the protection output terminals of a multiplexing unit of a first ADM are each coupled to a respective

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protection input terminal of a multiplexing unit of a second ADM, and the protection output terminals of the second ADM are each coupled to a respective protection input terminal of the first ADM.

5. Claims 1, 3-4, 6, 16 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Thompson (U.S. Patent 6,249,510 B1).

Regarding claims 1 and 19, Thompson discloses in FIG. 2 a WDM protection add/drop multiplexer (ADM). The ADM comprises an optical input terminal 22, an optical output terminal 21, a plurality of protection input terminals, a plurality of protection output terminals 24-1, a plurality of add/drop terminals 60-1 and 60-2, a demultiplexer 15-2, a plurality of switching units 50-1 to 50-N and a multiplexer 25-2. The switching unit can be operated to add the optical signal λ_1 to the optical output signal.

Regarding claim 3, the switching unit includes a third output 60-2,

Regarding claim 4, FIG. 2 includes a plurality of drop terminals λ_1 to λ_N .

Regarding claim 6, FIG. 2 includes a plurality of add terminals λ_1 to λ_N .

Regarding claim 16, the structure of each multiplexing unit of the claim is similar to that of claim 1 and has been discussed above. In addition, Thompson suggested in FIG. 1 that a plurality of such ADMs can be connected in a ring configuration. That is, the protection output terminals of a multiplexing unit of a first ADM are each coupled to a respective protection input terminal of a multiplexing unit of a second ADM, and the protection output terminals of the second ADM are each coupled to a respective protection input terminal of the first ADM.

Claim Rejections - 35 USC § 103

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6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2, 5, 7, 9-10, 17-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson (U.S. Patent 6,249,510 B1) in view of Meli (U.S. Patent 5,956,319).

Thompson has been discussed above in regard to claims 1, 3-4, 6, 16 and 19. The difference between Thompson and the claimed invention is the structure of the switching unit. The channel switching unit of Thompson has three inputs and three outputs for the purpose of add/drop and protection of the channel. It consists of four 1x3 switches and two 1x2 switches. Meli teaches in FIG. 2 a switching unit, consisting of five 2x2 switches, for add/drop and protection, which is equivalent to the switching unit of Thompson. The first and second inputs of switch 22 of FIG. 2 of Meli are coupled to the working and protection inputs, and its first and second outputs are coupled to the working output and protection output. One of ordinary skill in the art would have been motivated to combine the teaching of Meli with the WDM protection ADM of Thompson because the switching unit of Meli has less number of switches and uses one kind of switches. This simplifies the design, manufacturing and maintenance of the switching unit. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the switching unit in the ADM of Thompson with the switching unit of Meli because it has less number of switches and uses one kind of switches, and therefore is simpler in design and easier to manufacture and maintain.

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8. Claim 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ester et al. (PCT Pub. WO 98/47255) in view of Cao (U.S. Patent 6,337,755 B1) and Arecco (U.S. Patent 6,400,476 B1).

Ester et al. has been discussed above in regard to claims 1, 3-4, 6, 16 and 19. The difference between Ester et al. and the claimed invention is that Ester et al. does not include regenerators and transponders in the ADM. Cao teaches in FIG. 1 the use of regenerators to reduce the noise accumulated in the transmission system. One of ordinary skill in the art would have been motivated to include the teaching of Cao in the ADM of Ester et al. because the regenerators reshape the digital signal and allow for transmission of data over long distance. Arecco teaches in FIG. 2 the use of transponders to convert the optical signal from the transmitters to an appropriate wavelength for combining with the other channels of the WDM system. One of ordinary skill in the art would have been motivated to include the teaching of Arecco in the ADM of Ester et al. because a transponder can bridge incompatible facilities. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include regenerators, as taught by Cao, and transponders, as taught by Arecco, in the protection ADM of Ester et al. because regenerators reduce transmission noise and transponders allow the interconnection of incompatible facilities.

9. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ester et al. (PCT Pub. WO 98/47255) in view of Arecco et al. (U.S. Patent 5,903,371).

Ester et al. has been discussed above in regard to claims 1, 3-4, 6, 16 and 19. The difference between Ester et al. and the claimed invention is that Ester et al. does not include an optical coupling section. Arecco et al. teaches in FIG. 2 an optical ADM with optical coupler 31

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and 43. Coupler 31 is between the input terminal and the input of the ADM for dropping a selective component signal. Coupler 43 is between the output terminal and the output of the ADM for adding a selective component signal. One of ordinary skill in the art would have been motivated to combine the teaching of Arecco et al. with the optical ADM of Ester et al. because it is desirable to receive and interpret the telemetry signal to control the switching unit. It is also desirable to add the telemetry at the output terminal to include management information such as quality measurements of optical signal in the telemetry channel. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include couplers at the input terminal and output terminal for dropping and adding telemetry channels, as taught by Arecco et al., in the protection ADM of Ester et al. because the incoming telemetry channel may contain information for controlling the switching unit setting and the outgoing telemetry channel may contain quality measurements of optical signal.

Allowable Subject Matter

10. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 703 305-4341. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703 305-4729. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703 872-9314 for regular communications and 703 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-3900.

skl

July 7, 2003


JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes **incorporated** therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may **NOT** be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.